

Date: Thu, 25 Nov 93 04:30:35 PST
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V93 #113
To: Ham-Homebrew

Ham-Homebrew Digest Thu, 25 Nov 93 Volume 93 : Issue 113

Today's Topics:

210XL Bearcat Scanner to read 1012Mhz?
 Amplifier for 1270MHz (3 msgs)
 How to calibrate a DVM
 LB1473 chips? (2 msgs)
 Opto-isolator keying
 Police BBS
 schematic for audio T pad?
 single sideband generation
 Squelch add on
W7EL Optimized QRP: VFO Problem

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 23 Nov 93 12:39:57 CST
From: timbuk.cray.com!hemlock.cray.com!mahogany30!n3022@uunet.uu.net
Subject: 210XL Bearcat Scanner to read 1012Mhz?
To: ham-homebrew@ucsd.edu

I am posting on behalf of my father, a retired
news photographer who was out there in the action
almost every day. Since retirement, most of the
"action" he has experienced has been through
shortwave (and scanner) monitoring. He has listened to
the local police dept for years on 154Mhz. Now the
city hall has purchased 900Mhz equipment and have left
him in the dark.

Rather than buying a new scanner, my father is wondering if there is a converter that will double the upper-end frequency capability of his 210XL Bearcat Scanner from 512Mhz to 1012Mhz. Has anyone run across one?

Thanks for your help,

Jim
n3022@cray.com

Date: Tue, 23 Nov 1993 07:32:23 GMT
From: library.ucla.edu!europa.eng.gtefsd.com!emory!kd4nc!ke4zv!
gary@network.ucsd.edu
Subject: Amplifier for 1270MHz
To: ham-homebrew@ucsd.edu

In article <1993Nov22.201609.17703@Csl.Stanford.EDU> paulf@Csl.Stanford.EDU
(Paul Flaherty) writes:

>wa2sff@cbnewsh.cb.att.com (joseph.e.wilkes) writes:

>

>>I am getting active on 1270 satellites and I need an amplifier

>>to raise the 10 Watts of my rig upto about 100 watts.

>

>Most folks seem to do pretty well into A0-13 using 10w with medium gain
>yagis. If you're going for a better uplink, you might want to consider
>some of the newer optimized long boom L - Band yagis. As the the saying
>goes, aluminum tends to be cheaper than silicon...

I used 20 watts, SSB Electronics transverter mounted at the antenna,
into a long Down East loop yagi, 19 db, for a while. It worked, sort of,
but the required pointing accuracy is a problem, having the transverter
at the antenna is a problem, and getting all the antennas boresighted
to the same point in space for uplink and downlink is a pain. It's easier
to use a 1.2 GHz antenna with about the same beamwidth as the 70 cm
yagi and run a bit more power. About 16 db of antenna gain is about
right with a 3 db loss feedline (150 foot run) and a 250 watt amp.
Kilowatt hours are even cheaper than aluminum if you aren't operating
continously. :-)

Gary

--

Gary Coffman KE4ZV	Where my job's going,	gatech!wa4mei!ke4zv!gary
Destructive Testing Systems	I don't know. It might	uunet!rsiatl!ke4zv!gary
534 Shannon Way	wind up in Mexico.	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244	-NAFTA Blues	

Date: Tue, 23 Nov 1993 07:52:49 GMT
From: library.ucla.edu!europa.eng.gtefsd.com!emory!kd4nc!ke4zv!
gary@network.ucsd.edu
Subject: Amplifier for 1270MHz
To: ham-homebrew@ucsd.edu

In article <2639@arrl.org> zlau@arrl.org (Zack Lau) writes:
>In rec.radio.amateur.homebrew, gary@ke4zv.atl.ga.us (Gary Coffman) writes:
>>
>>Or you can take the modern approach and use Wilkinson power combiners
>>and a bunch of the 20 watt Mitsubishi solid state bricks. That get's
>>expensive fairly fast though, say 12 modules for a 240 watt amp, and
>>you need a hefty low voltage supply, and insurance that you always have
>>a good termination impedance and lightning protection.
>
>Anyone actually blow up these devices with a high SWR despite
>good heat sinking? At rated power, they are usually designed to
>withstand a 20:1 SWR, though this undoubtedly degrades if you are
>running them at twice their rated power :-).

My concern was whether they would be unconditionally stable into
certain reactive loads. I've had UHF bricks oscillate if the
100 ohm resistor in the Wilkinson combiner opens.

>Keep in mind that it is pretty easy to mount a solid state amp
>at the antennas, while only a real *fanatic* would run a water
>cooled tube amplifier at the top of a tower. Thus, you might
>factor in the feedline loss to get a more realistic comparison.

I don't like to mount expensive solid state amps and their heavy
DC supplies up where the lightning plays. It's bad enough to have
to climb up and replace preamps. I want an elevator if I have to
service power amplifiers and 50 amp DC supplies on the tower. :-)

Gary

--
Gary Coffman KE4ZV | Where my job's going, | gatech!wa4mei!ke4zv!gary
Destructive Testing Systems | I don't know. It might | uunet!rsiatl!ke4zv!gary
534 Shannon Way | wind up in Mexico. | emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244 | -NAFTA Blues |

Date: 24 Nov 93 15:04:03 GMT

From: ogicse!cs.uoregon.edu!sgiblab!darwin.sura.net!fconvx.ncifcrf.gov!fcs260c!
mack@network.ucsd.edu
Subject: Amplifier for 1270MHz
To: ham-homebrew@ucsd.edu

In article <2639@arrl.org> zlau@arrl.org (Zack Lau) writes:
>In rec.radio.amateur.homebrew, gary@ke4zv.atl.ga.us (Gary Coffman) writes:
>>In article <CGuIx7.1lE@cbnewsh.cb.att.com> wa2sff@cbnewsh.cb.att.com
(joseph.e.wilkes) writes:
>>>I am getting active on 1270 satellites and I need an amplifier
>>>to raise the 10 Watts of my rig upto about 100 watts.
>>>Are there any good articles or kits for 2c39 amplifiers?
>>>
>>>The one the in arrl handbook needs a small machine shop to
>>>build. Does anyone make kits?
>>
>>Or you can take the modern approach and use Wilkinson power combiners
>>and a bunch of the 20 watt Mitsubishi solid state bricks. That get's
>>expensive fairly fast though, say 12 modules for a 240 watt amp, and
>>you need a hefty low voltage supply, and insurance that you always have
>>a good termination impedance and lightning protection.

...And (I think it's Zack who replies)

>
>Keep in mind that it is pretty easy to mount a solid state amp
>at the antennas, while only a real *fanatic* would run a water
>cooled tube amplifier at the top of a tower. Thus, you might
>factor in the feedline loss to get a more realistic comparision.

Zack how do you get 240W of 12 V up a tower?

Jo NA3T

(sorry thats Joe)

Joseph MACK NA3T mack@ncifcrf.gov

Date: Mon, 22 Nov 1993 22:12:56 GMT
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!agate!iat.holonet.net!
pubcon.fort-worth.tx@network.ucsd.edu
Subject: How to calibrate a DVM
To: ham-homebrew@ucsd.edu

i wouldnt recomend calibrating a dvm on your own, it wont be as
accurate with out using a calibration standard used at a calibration
lab. they send their standards to the national bureau of standards for
calibration. its really not as easy as it sounds. also, are all your
meters reading the same type of voltate? eg is one reading average

voltage and another reading rms voltage? this needs to be determined before you even try to calibrate them. hope this helps. 73. wb5kxw

Date: Tue, 23 Nov 1993 20:03:29 GMT
From: netcomsv!netcom.com!fmitch@decwrl.dec.com
Subject: LB1473 chips?
To: ham-homebrew@ucsd.edu

hi, mitch, wa4osr here in mobile, alabama...

i have a hal cri-200 "dumb" rtty modem which has a very nice x/y tuning display using a led diode matrix... the chips which drive the matrix are labeled LB1473 ... i don't reconginze the manufacturer on the chips... no name, just a logo...

anyway, i want to build a stand alone tuning unit to use with some of the more "modern" modems, and would like to duplcate the circuit in the cri-200 ... i have tried to find the lb1473 chips to no avail... no reference or cross-reference has them listed... does anyone know of a source of these chips or a substitute... and, if i find the chips, i desperately need a data sheet on them...

many thanks if you can help...

mitch, wa4osr

--

fmitch@netcom.com
Felton "Mitch" Mitchell, WA4OSR in Mobile, Alabama USA
205-342-7259 home, 205-476-4100 work, 205-476-0465 FAX
co-sysop for W4IAX bbs running fbb ... sysop for WA4OSR DXCluster in Mobile..

Date: 24 Nov 93 14:54:48 GMT
From: ogicse!uwm.edu!spool.mu.edu!agate!iat.holonet.net!vulcan!
gary@network.ucsd.edu
Subject: LB1473 chips?
To: ham-homebrew@ucsd.edu

fmitch@netcom.com (Felton Mitchell) writes:

> hi, mitch, wa4osr here in mobile, alabama...

>

> i have a hal cri-200 "dumb" rtty modem which has a very nice x/y

> tuning display using a led diode matrix... the chips which drive
> the matrix are labeled LB1473 ... i don't reconginze the manufacturer
> on the chips... no name, just a logo...
>
> anyway, i want to build a stand alone tuning unit to use with some of
> the more "modern" modems, and would like to duplcate the circuit in
> the cri-200 ... i have tried to find the lb1473 chips to no avail...
> no reference or cross-reference has them listed... does anyone know
> of a source of these chips or a substitute... and, if i find the
> chips, i desperately need a data sheet on them...
>
> many thanks if you can help...
>
> mitch, wa4osr
> --
> -----
> fmitch@netcom.com
> Felton "Mitch" Mitchell, WA4OSR in Mobile, Alabama USA
> 205-342-7259 home, 205-476-4100 work, 205-476-0465 FAX
> co-sysop for W4IAX bbs running fbb ... sysop for WA4OSR DXCluster in Mobile..
> -----

I've also been thinking of building a solid-state tuning indicator. I am presently using a scope, but it is old (and the only tube device left in the shack). My question is, what is the size of the LED matrix, and where does one obtain a matrix.

I assume that, with a matrix, a scope-type indicator can be emulated with a pair of A to D converters. Connecting the output of the converters to the matrix could be another problem, though, since one would need to address both x & y coordinates.

I've looked into using an LCD screen, but those seem to be addressed sequentially. For tuning indicators, I'm not sure that they are appropriate.

--

Gary Tennyson BellSouth Telecommunications, Inc.

Internet: gary@vulcan.com

Date: Mon, 22 Nov 1993 22:20:42 GMT
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!agate!iat.holonet.net!
pubcon.fort-worth.tx@network.ucsd.edu
Subject: Opto-isolator keying

To: ham-homebrew@ucsd.edu

an opto isolator is nothing more than that, an led with a photo sensing device across from it. circuitry is still going to be needed to act as a switch when hooked to the output of the optoisolator. unless he can trigger his tranciever with the voltage developed by the photosensor of the optoisolator, which might be done in a grid type keying situation but it would be very unlikely. someone correct me if im mistaken. good luck 73 wb5kxw

Date: Fri, 19 Nov 1993 10:57:12 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!apple.com!amd!netcomsv!netcom.com!
kevincur@network.ucsd.edu
Subject: Police BBS
To: ham-homebrew@ucsd.edu

Large selection of file areas...Crime Prevention Information,
Ham Radio, Law Enforcement and General Software. Many Door
areas are available-Try them--they are entertaining & Fun!!
C.O.P.S BBS is available 24 hours a day, 7-days a week.
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(408) 996-7790

Tell them Kevin sent you!!

--

Kevin Curry

P.O. Box 7083

Fremont, CA 94537-7083

E-Mail - kevincur@netcom.com

Never insult seven men, when all you're packin' is a six gun - Zane Gray

The night prowler strikes again!

Date: 22 Nov 1993 04:32:05 GMT

From: nntp.ucsb.edu!library.ucla.edu!europa.eng.gtefsd.com!howland.reston.ans.net!
vixen.cso.uiuc.edu!moe.ksu.ksu.edu!cis.ksu.edu!mac@network.ucsd.edu

Subject: schematic for audio T pad?

To: ham-homebrew@ucsd.edu

Can anyone please show me the schematic of a "T pad" for remote-control. I know that a T pad uses at least two variable pots and probably keeps the input impedance relatively constant, but I haven't been able to re-invent the circuit by diddling around.

```
-----/\ /\ /\ /\ /\ \-----
      ^
input      |      output
```

```
-----/\ /\ /\ /\ /\ \-----
      ^
      |
--Myron.
--
```

We preserve our freedoms using four boxes: soap, ballot, jury, and cartridge.

Myron A. Calhoun, PhD EE; Assoc. Professor (913) 539-4448 home

INTERNET: mac@cis.ksu.edu 532-6350 work, 532-7353 fax

UUCP: ...rutgers!depot!mac Packet radio: W0PBV@N0ARY.#NOCAL.CA.USA.NA

Date: 22 Nov 93 16:40:24 EST

From: psinnntp!arrl.org@uunet.uu.net

Subject: single sideband generation

To: ham-homebrew@ucsd.edu

Maybe big advantage to filtering is that you don't really have to be able to know what is going on--to get better unwanted sideband reject you merely throw more more parts in until you meet spec :-).

But, with phasing, in order to improve your design, you have to know where the errors are, which might not be intuitively obvious. Thus, unless you *really* know what you are doing, you can go around in circles improving circuits that work just fine, while the real problem lies untouched.

BTW, the errors are typically too small to be measured directly.

Zack Lau KH6CP/1

Internet: zlau@arrl.org "Working" on 24 GHz SSB/CW gear
Operating Interests: 10 GHz CW/SSB/FM
US Mail: c/o ARRL Lab 2 way QRP contacts--700+ stations worked
225 Main Street Station capability: QRP, 1.8 MHz to 10 GHz
Newington CT 06111 modes: CW/SSB/FM/packet
Phone (if you really have to): 203-666-1541

Date: Tue, 23 Nov 1993 13:37:44 +0000
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!pipex!uknet!demon!
abacus!dmb@network.ucsd.edu
Subject: Squelch add on
To: ham-homebrew@ucsd.edu

I'm currently building a gen. coverage SW superhet. The basic design is quite simple:

RF amp/VFO/mixer/2xIF stages/BFO/prod.detector/detector/AGC/CW filter/AF amp.
I'd like to incorporate a squelch control, but don't know how it would work, or where I'd incorporate it into the design.

Any references/articles/handbook pointers would be much appreciated.

73

David.

--

David Byrne, Abacus Software, London, UK Tel: +44 71 930 4884
Email: dmb@abacus.demon.co.uk Fax: +44 71 839 7445
Here's a koan: If you have ice-cream I will give you some. If you have none,
I will take it away from you. (it's an ice-cream koan).

Date: 22 Nov 1993 16:06:35 GMT
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!math.ohio-state.edu!
news.acns.nwu.edu!casbah.acns.nwu.edu!rdewan@network.ucsd.edu
Subject: W7EL Optimized QRP: VFO Problem
To: ham-homebrew@ucsd.edu

I am building W7EL's ``Optimized'' QRP rig described in Aug 1980 QST, Nov 1980 QST and the 1993 ARRL Handbook. The VFO output (measured on a scope) is only 0.25V pp whereas it should be about 5v pp.

The VFO is a Hartley oscillator with a 2N4416 N-JFET. I modified the design from 40m to 20m by halving the inductance and capacitance in the tuned circuit. The VFO oscillates readily and is quite stable.

The range is from 14.0000 to 14.145MHz. My only problem is the amplitude. The one other change I made is that I replaced the 2.7pf series capacitor in the gate with a 2pf one. I figured that with a doubling of frequency, this should be fine. Lastly, I am using an NTE equivalent of the 2N4416. The specs were on the wrapper and they seem to match the specs of 4416.

Any suggestions??

I am thinking about increasing the gate series capacitor. If that does not work, then replacing the FET. As a last resort, add a 13db gain block.

Rajiv
aa9ch
r-dewan@nwu.edu

Date: Tue, 23 Nov 1993 07:16:28 GMT
From: library.ucla.edu!europa.eng.gtefsd.com!emory!kd4nc!ke4zv!
gary@network.ucsd.edu
To: ham-homebrew@ucsd.edu

References <CGuIX7.1LE@cbnewsh.cb.att.com>,
<1993Nov22.154419.23109@ke4zv.atl.ga.us>, <CGwr5J.HzG@csn.org>
Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)
Subject : Re: Amplifier for 1270MHz

In article <CGwr5J.HzG@csn.org> dfeldman@teal.csn.org (Dave Feldman) writes:
>

>Are you aware of any kw-class amps available (not surplus; designed for
>ham use)? Not for satellite -- interested for weak signal terrestrial...

I'm not aware of any commercial kW amps designed for the amateur market in the 1.2 GHz band.

You might be able to push a 8890 or 3CX800 to 1.2 GHz in a cavity design, but I wouldn't bet on it being stable. You might be able to do a 9 tube ring amp using the 3CX100A5, but I suspect it would be a nightmare to tame. Six of the German amps combined with Wilkinson combiners might do. Probably the best choice would be a klystron or klystron amplifier. That would certainly be a special order item. Contact Varian, they have external cavity klystrons and klystrons that may be suitable.

Gary
--

Gary Coffman KE4ZV | Where my job's going, | gatech!wa4mei!ke4zv!gary
Destructive Testing Systems | I don't know. It might | uunet!rsiatl!ke4zv!gary

534 Shannon Way	wind up in Mexico.	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244	-NAFTA Blues	

End of Ham-Homebrew Digest V93 #113
